

In the Specification:

On page 1, after the title insert the following:

--RELATED APPLICATIONS

This is a U.S. national stage of application No. PCT/DE2003/003683, filed on November 6, 2003.

This patent application claims the priority of German patent applications 102 61 309.5 filed December 27, 2002 and 103 06 312.9 filed February 14, 2003, the disclosure content of which is hereby explicitly incorporated by reference.

FIELD OF THE INVENTION--

On page 1, revise the paragraph beginning at line 7 as follows:

The invention relates to a laser diode component ~~according to the preamble of patent claim 1~~ comprising a laser diode bar and an electronic circuit arrangement ~~in accordance with the preamble of patent claim 11. It relates in particular to a laser diode component and to a circuit arrangement comprising one or a plurality of high-power laser diode bars~~ comprising a plurality of laser diode bars.

On page 1, before line 15, insert the following heading:

--BACKGROUND OF THE INVENTION--

On page 1, revise the paragraph beginning at line 15 as follows:

Failure of a laser diode bar may give rise to the interruption of the current flow via the laser

diode bar. Laser diode bars are well known and are described, for example, in R. Diehl, "High-Power Diode Lasers, Fundamentals, Technology, Applications", Topics in Applied Physics Vol. 78, Springer-Verlag, Berlin (2000). This book includes a chapter on pages 173-218 concerning laser diode bars, and the contents thereof are hereby incorporated by reference. In a circuit arrangement comprising a plurality of laser diode bars or laser diode bar modules connected in series with one another this leads to the complete failure of all the laser diode bars or modules of the affected series. In order to eliminate the failure, it has been customary hitherto to exchange the entire series with the failed laser diode bar.

On page 1, before line 25, insert the following heading:

--SUMMARY OF THE INVENTION--

On page 1, revise the paragraph beginning at line 25 as follows:

~~The present invention is based on the~~ One object of ~~providing the present invention is to provide~~ a laser diode bar and a circuit arrangement in which failure of an individual laser diode bar or module does not give rise to the complete failure of the entire series of laser diode bars or modules.

On page 1, delete the paragraphs beginning at line 31 and line 36 in their entirety.

On page 2, before the first line, insert the following paragraph:

--This and other objects are attained in accordance with one aspect of the present invention directed to a laser diode component comprising a laser diode bar on which a specific operating

voltage is impressed during operation, comprising a bridging element connected in parallel with the laser diode bar, which bridging element, when the specific operating voltage is impressed on the associated laser diode bar, transmits a smaller current than the laser diode bar or transmits no current and which bridging element switches over to such a low-impedance state that the laser diode bar is bridged as soon as the voltage drop across the laser diode bar exceeds the specific operating voltage by a predefined voltage value.--

On page 2, revise the paragraph beginning on line 1 as follows:

The arrangement according to an embodiment of the invention provides for connecting a bridging element, in particular in the form of a semiconductor component, in parallel with a diode laser such that, in the event of failure of the diode laser resulting in an interruption or a severe reduction of the current flow via said laser, the bridging element switches through, i.e. turns on, and electrically bridges the failed diode laser. Instead of the semiconductor component, it is also possible to use a mechanical element, for example a relay. The bridging element has to be configured in such a way that it is at sufficiently high impedance during proper operation of the diode laser and that it switches through in the case of a defective high-impedance diode laser on account of the increased voltage drop and electrically bridges the diode laser, so that the remaining diode lasers in a series circuit still remain supplied with current.

On page 3, revise the paragraph beginning on line 1 as follows:

In ~~a preferred refinement~~ of a laser diode component according to an embodiment of the invention, the diode laser and the associated bridging element are applied on a common heat

sink, the bridging element is fixed on the heat sink by means of a first connecting means and the diode laser is fixed on the heat sink by means of a second connecting means. The melting point of the first connecting means is at a higher temperature than that of the second connecting means. This advantageously avoids the situation in which, when the bridging element is mounted on to the heat sink before the diode laser is mounted, the connection between the bridging element and heat sink is damaged during the mounting of the diode laser. As an alternative, the diode laser and the bridging element can be mounted on the heat sink simultaneously or successively (preferably by means of heating the component itself) using the same connecting means or using similar connecting means.

On page 3, revise the paragraph beginning at line 20 as follows:

~~Preferably, the~~ The bridging element is can be fixed on the heat sink by means of a hard solder and the laser diode bar by means of a soft solder.

On page 4, delete the paragraph beginning at line 7 in its entirety.

On page 4, before line 14, insert the following heading:

--BRIEF DESCRIPTION OF THE DRAWINGS--

On page 4, revise the paragraph beginning at line 14 through line 17 as follows:

Figure 1 shows a sectional view through the exemplary embodiment,
and

Figure 2 shows a plan view of the exemplary embodiment[[.]], and

Figure 3 shows a bridging element having a plurality of diodes connected in series.

On page 4, before line 19, insert the following heading:

--DETAILED DESCRIPTION OF THE DRAWINGS--

On page 4, revise the paragraph beginning at line 19 as follows:

In the exemplary embodiment, a laser diode bar 1 is mounted together with an AlGaAs diode 2 on a common metallic carrier 3. The laser diode bar 1 is fixed on the carrier 3 by means of a soft solder [[4]] 5 (for example, indium solder) and the AlGaAs diode 2 is fixed on the carrier 3 by means of a hard solder [[5]] 4 (for example, AuSn solder). The carrier 3 is a heat sink and in each case constitutes a first electrical connection of the laser diode bar 1 and of the AlGaAs diode 2.

On page 5, revise the paragraph beginning at line 1 as follows:

In a process for producing such a laser diode component, firstly the AlGaAs diode 2 is fixed on the carrier 3 by means of the hard solder [[5]] 4. Afterward, the metallic carrier 3 has indium vapor-deposited on it and is thereby prepared for the mounting of the laser diode bar 1. The laser diode bar 1 is subsequently applied by means of soft ~~soldering~~ solder 5 on the carrier 3. Since the indium soldering is effected at a significantly lower temperature than the hard soldering of the AlGaAs diode 2, there is no risk of the connection between carrier 3 and AlGaAs diode 2 softening again during the mounting of the laser diode bar 1.

On page 5, revise the paragraph beginning at line 15 as follows:

If, in the case of the arrangement described above, the laser diode bar 1 fails and it consequently no longer permits a current flow, the voltage between cathode (carrier 3) and anode (connection strip 6) rises greatly until the parallel diode 2 switches to the on state and essentially short-circuits the laser diode bar 1.

Revise the paragraph bridging pages 5 and 6 as follows:

Instead of the AlGaAs diode 2, it is possible to use a suitable zener diode with regard to the switching voltage, a correspondingly suitable triac (breakover), a bridging element 20 with a plurality of Si diodes 21, 22, 23 connected in series (Fig. 3) or a mechanical switch/a mechanical fuse (for example a surge arrester, a spring on a solder ball or a bimetallic switch).

On page 6, delete the paragraph beginning at line 22 in its entirety.